Energy Cost Management

In an era of ever-tightening budgets, cities and towns across the Commonwealth are faced with the prospect of diverting a growing percentage of their resources to the funding of fixed costs such as health insurance, pension, and energy. The goal of this "best practice" article is to provide a framework that will help communities take control of, and even reduce their energy costs.

Saving energy dollars is not necessarily limited to turning off lights at night or adjusting thermostats. While larger scale energy efficiency programs often stall due to perceived cost barriers, communities and organizations around the country have committed to continuously improving their energy performance. As a result, they have produced significant cost savings, freeing up funds for other worthwhile needs. For example, according to the Massachusetts Technology Collaborative, "efficiency initiatives in Medford's municipal buildings are generating annual cost savings of more than $50,000 per year, while installations of photovoltaic systems at city hall and Hormel Stadium are focusing attention on the benefits of clean energy technologies."

A wealth of information and resources, including technological solutions, financing innovations, and proven management strategies are now available through state and federal government agencies, non-profit groups, and private sector contractors. Effectively tapping these resources requires an on-going commitment to improving energy cost management. This means establishing policies and procedures that draw from the expertise of employees and citizens, using past performance to formulate goals and an action plan, and incorporating progress evaluations to ensure success on a continuing basis.

The Energy Team / Committee

Fully addressing the issue will require the input and commitment of individuals with expertise in areas such as facilities management, contracting, and engineering. Building an energy team that includes members with these backgrounds is important because they will bring an understanding of how to measure energy use and inefficiencies as well as how to best identify and implement technical solutions. Furthermore, the employees and students who have the most direct understanding of, and impact on, how the town's energy is consumed should be represented. They will be key in implementing awareness campaigns, communicating progress, and developing incentives.

Energy Star, a government/industry partnership administered by the U.S. Environmental Protection Agency, has developed a variety of comprehensive guides, peer networks, and benchmarking tools to educate and assist organizations in improving energy efficiency. According to Energy Star, successful energy teams accomplish the following:

- Assess Energy Performance
- Set Goals & Create Action Plan
- Evaluate Progress
- Recognize Achievement

Assess Performance

The energy team, or its designee, should collect energy use information and document data over time. A good understanding of how and where energy is consumed is vital to implementing cost improvements and changes. It will help in identifying high performing facilities for recognition and replicable practices. It will allow for a better prioritization of poor performing facilities for improvement. And it will develop a historical perspective and context for future actions and decisions.

Some communities contract out to utilities or energy service companies to conduct thorough energy audits. Other communities use in-house expertise to assess and analyze their energy performance. Energy Star has a variety of self-assessment tools and other helpful tips on its website at Energy Star: tools & resources. Also, the Commonwealth of Massachusetts offers a wealth of useful advice and tools through the Rebuild Massachusetts Program as well as the Massachusetts Technology Collaborative.

Set Goals & Create Action Plan

Once performance information has been assessed and analyzed, the energy team should work to set clear and measurable goals. These goals will help to gauge the success of the energy management program. Furthermore, they will foster ownership of energy management, thus helping to motivate employees, volunteers and community members.

The energy team will then need to design an action plan that will close the gap between current performance and the decided upon goals. It will be up to the team to research and understand what types of energy saving activities or projects are most relevant to the community's needs given the results of the performance assessment. Programs may include projects as large as major capital improvements, or as small as campaigns to influence energy-use behavior. However, a key element to all successful energy action plans is the incorporation of cost-benefit analyses that measures potential energy savings against the resources needed to implement each part of the program. Such analyses will also be helpful in communicating the value of the program to decision makers and taxpayers.

The town of Brookline's Climate Action Plan is an excellent illustration of how cost-benefit analysis can be incorporated into the overall strategy and effectively presented to the public. The plan includes a table that lists all of the existing and proposed initiatives, the estimated annual cost savings associated with each, and the estimated implementation cost.

The Energy Star website offers valuable, yet free, tools (including a cash flow opportunity calculator) to help estimate the cost-benefit impacts of different projects. An expanded list of tools and resources can be found at Energy Star: tools & resources.

In studying costs, the team will be responsible for researching innovative financing sources and tools. For example, some utility companies offer rebates that can greatly reduce the cost of efficiency improvements. The city of Newton received rebates from NSTAR Electric that paid for 80% of the city's energy efficient lighting program:

As of 2004, forty public buildings had been retrofitted at a cost of $550,000, with NSTAR providing 80% of this amount ($414,000). Newton's investment of $136,000 is saving 700,000 kilowatt hours every year or about $70,000 per year at current energy prices (City of Newton: Energy Action Plan).

In some cases, grants and/or tax incentives may be available to lessen the upfront cost impact of energy efficiency projects. The Massachusetts Technology Collaborative summarizes many of these financial supports on its website.

Furthermore, the following two articles detail popular mechanisms for financing energy efficiency projects: "Innovative Financing Solutions: Finding Money For Your Energy Efficiency Projects" and "Easy Access to Energy Improvement Funds in the Public Sector". The energy team should carefully study these and other mechanisms that can greatly reduce, or eliminate the upfront costs of energy efficiency projects.

Finally, a vital component of any action plan will be a strategy to raise awareness. A communication plan should be developed to inform and build support among those who consume the energy as well as the taxpayers who fund its cost. Many organizations have created incentives that encourage their employees to improve energy management. An effective awareness campaign will incorporate both motivation and education. For example, most people are not aware that activating the power management features on a computer and monitor can save up to $100 annually per workstation (see Energy Star: Power Management). Nor do they realize that 25% more energy may be required to distribute air if your vents are blocked by furniture, files, stacks of paper etc. Simply posting such energy-saving tips is a good start in changing wasteful behavior. However, as Patty Barry, the head of Medford's Energy and Environment Office, points out, "while people may be gung-ho at first, we need to keep following up on a continuing basis. On-going education is key."

Evaluate Progress

A commitment to energy management means regularly reassessing performance. Measuring the effectiveness of projects and programs will help in making informed decisions about future energy initiatives. As the energy program develops, the energy team should compare its progress to pre-program baselines, as well as against the established goals. Many organizations also compare energy usage to peers in order to establish a relative understanding of where their performance ranks. Once again, Energy Star and the Massachusetts Technology Collaborative (among others) offer valuable resources in developing suitable benchmarks that can be compared to similar projects, buildings, and local governments.

Recognize Achievement

"Providing and seeking recognition for energy management achievements is a proven step for sustaining momentum and support for your program"(Energy Star: Guidelines for Energy Management). Giving recognition to individuals and groups within the organization who help achieve energy goals will motivate the staff and students, as well as bring positive exposure to the energy management program. Obtaining recognition from outside sources, such as the Energy Star Awards program, will highlight and validate the importance of the program. The energy team should determine how the different forms of recognition would be most effective at various levels in the organization, and incorporate them into the action plan.

Links (Please note that these links were all active as of 6/16/2008)

Examples of Energy/Climate Action Plans:

Newton, MA
Somerville, MA
Burlington, VT

Tools and Resources

State:
The Massachusetts Technology Collaborative
Clean Energy Choice: Matching Grants for Towns
Rebuild Massachusetts: Energy Management Basics
Commonwealth of Massachusetts Energy Management Services
Massachusetts Division of Energy Resources

Federal:
Energy Star
Energy Star: Power Management
Energy Star: tools & resources
"Innovative Financing Solutions: Finding Money For Your Energy Efficiency Projects"
"Easy Access to Energy Improvement Funds in the Public Sector"
U.S. Dept. of Energy Clean Cities Program
DSIRE: Database of State Initiatives for Renewable Energy

Non-Profit:
ICLIE Local Governments for Sustainability

Utilities:
Bay State Gas
Berkshire Gas
Keyspan
National Grid (Massachusetts Electric, Nantucket Electric)
Northeast Utilities
NSTAR
Unitil (Fitchburg Gas & Electric)